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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,071	12/09/2005	Rupert N Anderton	124-1138	9668
23117 7590 10/03/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER GREEN, YARA B	
			ART UNIT 2884	PAPER NUMBER
			MAIL DATE 10/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,071

Applicant(s)

ANDERTON ET AL.

Examiner

Yara B. Green

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/09/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The listing of reference PCT/GB02/00745 in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the angle θ as described on page 6, line 12 of the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one

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figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the optical correcting being arranged to support the polarizing element on a surface (claim 3) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be

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labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR

1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1, 12, and 14** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lettington et al. (WO 00/14587; published March 16, 2000).

Re **claim 1**, Lettington et al. disclose a radiation detector **30,31** (pg. 17, para. 1, lines 1-2) and a lens arrangement, the lens arrangement comprising a polarizing element **20,22** and an optical corrector **60**, the polarizing element being arranged to selectively transmit radiation of a first polarization and to selectively reflect radiation of a second polarization (pg. 4, para. 2, lines 1-6; pg. 5, para. 9, lines 1-3), and the optical corrector having a first and second surface, where at least one of the first and second surfaces is shaped to correct aberrations in the present lens arrangement (pg. 19, para. 1, lines 1-6).

Re **claim 12**, Lettington et al. disclose a radiation detection apparatus as claimed in claim 1, wherein the radiation detector is an imaging radiation detector (pg. 5, para. 6, lines 3-5).

Re **claim 14**, Lettington et al. disclose a radiation detection apparatus as claimed in claim 1, wherein the radiation detection apparatus is arranged to detect millimeter wavelength radiation (pg. 10, para. 3, lines 2-3).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 2-4, 7 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lettington et al. (WO 00/14587; published March 16, 2000).

Re **claim 2**, Lettington et al. disclose the limitations of claim 1, as mentioned previously. In view of the embodiment, as given by the schematic in Figure 15, there is no fundamental incompatibility between the curves of the optical corrector **60** and the polarizing element **22**. It would have been obvious of ordinary skill in the art to use a means of support between the two elements, as there are limited options in which they may be connected (flanges, pins, etc.) such that the optical corrector may support the element upon a surface.

Re **claim 3**, Lettington et al. disclose the limitations of claim 1, as mentioned previously, in which the polarizing element is positioned between the corrector and the detector. However, one of ordinary skill in the art would have been motivated to reverse the order of the parts such that the optical corrector is positioned between the polarizing element and the detector, as there is no

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specific advantage disclosed to dictate the ordering of the components (see *In re Gazda*, 219 F.2d 449, 104 USPQ 400 (CCPA 1955)).

Re **claim 4**, Lettington et al. discloses the limitations of claim 3, as mentioned previously. Lettington et al further discloses the radiation detection apparatus of claim 3, wherein a rearmost surface of the optical corrector is aspherical or spherical (pg. 19, para. 1, lines 1-8).

Re **claim 7**, Lettington et al. disclose the limitations of claim 1, as mentioned previously, but do not disclose implementing more than one optical corrector. It would have been obvious to one of ordinary skill to use a single optical corrector with the necessary profiles and attributes to remedy the desired aberrations or to use a compound system of optical correctors in order to accomplish the same result. As is well known in optics, multiple lenses may be condensed into a single complex lens and vice versa. Therefore, a mere duplication of parts has no patentable significance since the same results can be yielded (see *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)).

Re **claim 9**, Lettington et al. disclose the limitations of claim 7, as mentioned above and further disclose the further optical corrector 60 has a rear surface with a different profile to the profile of the front surface (see figure 15, element 60).

9. **Claims 5, 6, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lettington et al. (WO 00/14587; published March 16, 2000) in view of Silver (Microwave Antenna Theory and Design, 1997).

Lettington et al. disclose the limitations of claims 1 and 7, as mentioned above. Lettington et al., however, is silent as to the material and therefore densities of the optical corrector. Therefore, those materials with their corresponding densities that are well known in the art may be used. In the same field of endeavour of millimeter and sub-millimeter detection, Silver discloses that polymers

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such as polystyrene, with refractive index 1.6 ($1.001 < n < 2$) are suitable materials for lenses being used in the aforementioned wavelengths (pg 390, sect. 11-3). It is well known in the art that polymers can be configured to have any density desired, and therefore, it would be obvious to one of ordinary skill in the art to use a polymer as disclosed by Silver in the detector of Lettington et al. so that it may be configured to have a density such as $30 \text{ g} \cdot \text{l}^{-1}$.

10. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lettington et al. (WO 00/14587; published March 16, 2000) in view of Sternberg (US Patent No. 4,224,626; published September 23, 1980).

Lettington et al. disclose the limitations of claim 7, as mentioned previously, as well as the optical corrector having an aspherical, plane, or spherical profile (pg. 19, para. 1, lines 1-6). However, Lettington et al. does not disclose the cross-section of the optical corrector to be elliptical. In the same field of endeavour of sub-millimeter and millimeter radiation detection, Sternberg disclose that it is well known in the art to use an ellipsoidal lens in order to correct for an aberration such as astigmatism (col. 1, lines 51-62; see also "Aberrations" <http://physics.tamuk.edu/~suson/html/4323/aberrtn.html>, 1997). Therefore, it would have been obvious to one of ordinary skill in the art to modify the optical corrector of Lettington et al. to have an elliptical cross-section as disclosed by Sternberg in order to be able to correct for astigmatism.

11. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lettington et al. (WO 00/14587; published March 16, 2000) in view of Auletti (US Patent No. 4,482,513; published November 13, 1984).

Lettington et al. disclose the limitations of claim 7, as mentioned previously, but is silent as to the material of which the optical corrector is made which allows that which is well known in the art to be implemented. In the same field of endeavour of millimeter radiation detection, Auletti discloses fabricating lens using a plastics foam material (col. 2, lines 24-42). One of ordinary skill in the art would have been motivated to fabricate the optical corrector of Lettington et al. as disclosed by Auletti to permit facile fabrication of optical correctors in a variety of geometrical configurations.

12. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lettington et al. (WO 00/14587; published March 16, 2000) in view of Nikolov et al. (Patent No. 6,876,784; filed May 30, 2002).

Lettington et al. disclose the limitations of claim 1, as mentioned previously, but do not disclose the polarizing element being capable of focusing the second reflected radiation. In the same field of endeavour of millimeter radiation detection, Nikolov et al. disclose the polarizing element having beam splitting capabilities such that the radiation with a first polarization is transmitted and focused and the radiation with a second polarization is reflected and focused to another optical element (col. 3, lines 34-62). One of ordinary skill in the art would have been motivated to modify the polarizing element of Lettington et al. to focus radiation of the second polarization in order to reduce light loss and maximize the use of the incident radiation.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Alder et al. (GB 2279179) discloses a millimeter radiation detector that is configured to

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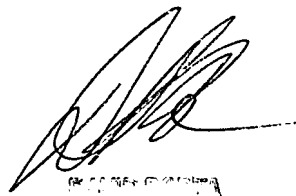
focus radiation of first and second polarizations independently. Alder et al. further disclose the polarizer as a polarizing reflector and the lenses are made of malleable polymers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yara B. Green whose telephone number is (571) 270-3035. The examiner can normally be reached on Monday - Thursday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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